

CLAIMS

That which is claimed is:

- Sub A6*
1. A laser apparatus comprising an external cavity laser, and a hermetically sealable container configured to enclose said external cavity laser in an inert atmosphere.
- Sub B7*
2. The apparatus of claim 1, wherein said inert atmosphere is moisture controlled.
3. The apparatus of claim 1, wherein said external cavity laser is tunable.
- Sub A7*
4. The apparatus of claim 3, wherein said external cavity laser comprises a gain medium having a first and second output facets, said second output facet having anti-reflective coating thereon.
5. The apparatus of claim 4, wherein said external cavity laser further comprises an end mirror, said end mirror and said first output facet of said gain medium defining an external cavity, said gain medium emitting a beam from said second output facet along an output path.
6. The apparatus of claim 5, further comprises a tuning assembly operatively coupled to said end mirror and configured to adjust said end mirror, in said hermetically sealable container.
7. The apparatus of claim 3, wherein said external cavity laser comprises a grid generator.
8. The apparatus of claim 1, wherein said external cavity laser comprises a channel selector.
9. The apparatus of claim 8, comprising a tuning assembly operatively coupled to said channel selector and configured to adjust said channel selector.
- Sub B7*
10. The apparatus of claim 1, further comprising an activated carbon drain positioned within said hermetically sealable container.

11. The apparatus of claim 1, further comprising a moisture trap positioned within said hermetically sealable container.

12. The apparatus of claim 1, wherein said inert atmosphere is a gas selected from nitrogen, helium, neon, argon, krypton, xenon, a nitrogen-helium mix, a neon-helium mix, a krypton-helium mix, or a xenon-helium mix.

13. The apparatus of claim 3, further comprising an optical fiber extending into said hermetically sealable container and positioned to receive optical output from said external cavity, and a fiber feedthrough, configured to hermetically seal said optical fiber.

14. A laser apparatus, comprising:

- (a) a gain medium having first and second output facets, said second output facet having an anti-reflective coating thereon;
- (b) an end mirror, said first output facet of said gain medium and said end mirror defining an external cavity, said gain medium emitting a beam along an optical path in said external cavity, said end mirror positioned in said optical path; and
- (b) a hermetically sealed container enclosing said external cavity within an inert, moisture-controlled atmosphere.

15. The apparatus of claim 14, further comprising a tuning assembly operatively coupled to said end mirror and configured to adjust said end mirror, said tuning assembly located within said hermetically sealed container.

16. The apparatus of claim 14, wherein said external cavity laser further comprises a grid generator, said grid generator positioned in said optical path in said external cavity.

17. The apparatus of claim 14, further comprising a channel selector, said channel selector positioned in said optical path in said external cavity.

18. The apparatus of claim 17, further comprising a tuning assembly operatively coupled to said channel selector and configured to adjust said channel selector, said tuning assembly positioned within said hermetically sealed container.

19. The apparatus of claim 14, further comprising an activated carbon drain positioned within said hermetically sealed container.

20. The apparatus of claim 14, further comprising a moisture trap positioned within said hermetically sealed container.

21. The apparatus of claim 14, wherein said inert atmosphere is a gas selected from nitrogen, helium, neon, argon, krypton, xenon, a nitrogen-helium mix, a neon-helium mix, a krypton-helium mix, or a xenon-helium mix.

22. A method for fabricating a laser, comprising:

- (a) providing an external cavity laser; and
- (b) hermetically sealing said external cavity laser in an inert atmosphere within a hermetically sealed container.

23. The method of claim 22, wherein said external cavity laser comprises a gain medium having an anti-reflective surface thereon, and an end mirror positioned in an optical path defined by a beam emitted from said gain medium.

24. The method of claim 23, wherein said external cavity laser comprises a tuning assembly operatively coupled to said end mirror and configured to adjust said end mirror.

25. The method of claim 22, wherein said external cavity laser comprises a grid generator.

26. The method of claim 22, wherein said external cavity laser comprises a channel selector.

27. The method of claim 26, wherein said external cavity laser comprises a tuning assembly operatively coupled to said channel selector and configured to adjust said channel selector.

Sub B7
28. The method of claim 22, further comprising vacuum baking said external cavity laser prior to said hermetically sealing.

Sub A10
29. The method of claim 22, further comprising vacuum baking at least one high outgassing component of said external cavity laser prior to said hermetically sealing.

Sub B7
30. The method of claim 22, further comprising providing an activated carbon drain in said hermetically sealed container proximate to said external cavity laser and absorbing volatile organic hydrocarbons with said activated carbon drain.

31. The method of claim 22, further comprising providing a moisture trap in said hermetically sealed container proximate to said external cavity laser and condensing moisture onto said moisture trap.

32. The method of claim 27, wherein said tuning assembly comprises a stepper motor.

Sub A11
33. A laser apparatus, comprising:

- (a) an external cavity laser; and
- (b) means for hermetically sealing said external cavity laser in an inert atmosphere.

Sub B7
34. The apparatus of claim 33, further comprising means for adsorbing volatile organic compounds from said inert atmosphere.

35. The apparatus of claim 33, further comprising means for trapping moisture from said inert atmosphere.

36. The apparatus of claim 33, further comprising means for tuning said external cavity laser.

37. The apparatus of claim 36, wherein said external cavity laser and said tuning means are enclosed within said hermetically sealing means.